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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,337	11/08/2001	Peter W. Green	GB 000164	3424

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EXAMINER

VOCKRODT, JEFF B

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 06/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/008,337

Applicant(s)

GREEN, PETER W.

Examiner

Jeff Vockrodt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2, 4. 6) ☐ Other: _____

DETAILED ACTION

This office action is in response to the election filed on April 2, 2003. Claims 1-24 are pending.

Election/Restrictions

Applicant's election with traverse of claims 12-24 in Paper No. 6 is acknowledged. The traversal is on the ground(s) that the product and the process are not distinct.

Claims 1-6, 12-16, and 23 pertain to the embodiment that includes "forming a predetermined pattern of weakened regions, while claims 7-11, 17-22, and 24 "divide the rigid layer" which broadly covers both (1) completely separating into contiguous portions and (2) forming a predetermined pattern of weakened regions. The restriction requirement is between process claims 1-11 and product claims 12-24. The rationale for distinctness is that the products as claimed may be produced by a process that is materially different than the claimed process.

Regarding claims 1-6, 12-16, and 23, applicant's argument that the written order of the steps does not limit the process claims is not persuasive. The last written step Claim 1 requires the step of "forming flexible connectors which extend between components on different portions." The different portions are defined by the first step in the process. Since a subsequent step aligns an element relative to another element that is defined in the first step, the written order of the claim is limiting. In contrast, the product as set forth in claim 12 may be made by a process that forms connectors before defining different portions of the rigid layer.

Regarding claims 7-11, 17-22, and 24, applicant's argument that the written order of the steps is not limiting is persuasive; however, there is another reason for distinctness of this group of process claims. Product claim 17 may be made by a process that does not require the claimed step of dividing a rigid layer into the contiguous portions as in process claim 7. For

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instance, in the product claim, two contiguous rigid portions may be provided separately without recourse to dividing from a rigid layer and this would read on a "rigid layer being divided into the contiguous portions." That is to say, because the products formed are indistinguishable, the claimed product may be formed by another materially different process than the claimed process.

Claims 1-11 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in Paper No. 6.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 12-14, 17-20, 23, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,786,988 ("Harari")

Harari teaches a bendable chip carrier of the smart card variety. In the relevant embodiment, shown in Fig. 14, lines of perforation are used to make the card bendable to protect the chip within the perforated area (col. 7, ll. 35-50).

Claim 12 reads on Harari as follows: An electronic device comprising a layer of rigid material (card substrate) having electronic components (153, 155) thereon, contiguous portions of the rigid layer being defined by weakened regions (157, 159, 161) of the rigid layer, and flexible connectors extending between components on different portions.

Claim 13. A device of claim 12 wherein the weakened regions comprise grooves in one or both faces of the rigid layer. (Grooves are formed in addition to the perforations; col. 7, ll. 50-56).

Claim 14. A device of claim 12 wherein the rigid layer is mounted over a flexible substrate. (See Fig. 12B, the outer plastic layer 131).

Claim 17. An electronic device comprising a layer of rigid material (card substrate) having electronic components (153, 155) thereon, and flexible connectors (163) extending between components on different contiguous portions of the rigid layer, the rigid layer being divided (perforations 157, 159, 161) into the contiguous portions such that the device is flexible.

Claim 18. A device of claim 17 wherein the rigid layer has been divided into the contiguous portions along weakened regions of the rigid layer (perforations weaken the card).

Claim 19. A device of claim 18 wherein the weakened regions comprise grooves in one or both faces of the rigid layer. (Grooves are formed in addition to the perforations; col. 7, ll. 50-56).

Claim 20. A device of claim 17 wherein the rigid layer is mounted over a flexible substrate. (See Fig. 12B, the outer plastic layer 131).

Claim 23. An article (card 143) having an electronic device (chip substrate +chip) mounted thereon, the electronic device comprising a layer of rigid material (chip substrate) having electronic components (153, 155) thereon, contiguous portions of the rigid layer being

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defined by weakened regions (157, 159, 161) of the rigid layer, and flexible connectors (163) extending between components on different portions.

Claim 24. An article (card 143) having an electronic device (chip substrate +chip) mounted thereon, the electronic device comprising a layer of rigid material having electronic components (153, 155) thereon, and flexible connectors (163) extending between components on different contiguous portions of the rigid layer, the rigid layer being divided (157, 159, 161) into the contiguous portions such that the device is flexible.

Claims 12-13, 16, 17-19, 22-24 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,998,738 ("Li").

Li teaches an electronic control module.

Claims 12-13 read on Li as follows: An electronic device comprising a layer of rigid material (14) having electronic components (26) thereon, contiguous portions of the rigid layer being defined by weakened regions (grooves 29, 30) of the rigid layer, and flexible connectors (21) extending between components on different portions.

Claim 16. A device of claim 12 wherein the connectors comprise a bridge-like portion (35; Figs. 2-3).

Claim 17. An electronic device comprising a layer of rigid material (14) having electronic components (26) thereon, and flexible connectors (21) extending between components on different contiguous portions of the rigid layer, the rigid layer being divided into the contiguous portions such that the device is flexible (the rigid layer is divided by grooves 29,30).

Claim 18-19. A device of claim 17 wherein the rigid layer has been divided into the contiguous portions along weakened regions of the rigid layer. (see grooves 29,30).

Claim 22. A device of claim 17 wherein the connectors comprise a bridge-like portion. (35; Figs. 2-3).

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Claim 23. An article (Fig. 5) having an electronic device (Fig. 1) mounted thereon, the electronic device comprising a layer of rigid material (14; Fig. 1) having electronic components (26) thereon, contiguous portions of the rigid layer being defined by weakened regions (grooves 29-30) of the rigid layer, and flexible connectors (21) extending between components on different portions.

Claim 24. An article (Fig. 5) having an electronic device (Fig. 1) mounted thereon, the electronic device comprising a layer of rigid material (14) having electronic components (26) thereon, and flexible connectors (21) extending between components on different contiguous portions of the rigid layer, the rigid layer being divided into the contiguous portions such that the device is flexible (see grooves 29, 30).

Claims 17, 20, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,179,501 ("Ocken").

Claim 17 reads on Ocken as follows: An electronic device comprising a layer of rigid material (24, 32; Fig. 1) having electronic components (26, 28) thereon, and flexible connectors (30) extending between components on different contiguous portions of the rigid layer, the rigid layer being divided (gap 41) into the contiguous portions such that the device is flexible.

Claim 20. A device of claim 17 wherein the rigid layer is mounted over a flexible substrate (base plate 12).

Claim 24. An article (flanges of Fig. 5 imply an article on which the package is mounted) having an electronic device mounted thereon, the electronic device comprising a layer of rigid material (24, 32) having electronic components (26, 28) thereon, and flexible connectors (30) extending between components on different contiguous portions of the rigid layer, the rigid layer being divided (gap 41) into the contiguous portions such that the device is flexible.

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Claims 17, 22, 24 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Pat. No. 6,396,709 ("Schmich").

Schmich teaches a PCB having rigid and elastically deformable sections (Fig. 4).

Claim 17 reads on Schmich as follows: An electronic device (Figs. 1A, 4) comprising a layer of rigid material (2, 3) having electronic components thereon, and flexible connectors (4) extending between components on different contiguous portions of the rigid layer, the rigid layer being divided into the contiguous portions such that the device is flexible.

Claim 22. A device of claim 17 wherein the connectors (4) comprise a bridge-like portion (Fig. 1a).

Claim 24. An article (40; Fig. 5) having an electronic device (2, 3, 4) mounted thereon, the electronic device comprising a layer of rigid material (2, 3) having electronic components thereon, and flexible connectors (4) extending between components on different contiguous portions of the rigid layer, the rigid layer being divided into the contiguous portions such that the device is flexible.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 15 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harari, Li, Ocken, or Schmich in view of U.S. Pat. No. 4,605,471 ("Mitchell").

Harari, Li, Ocken, and Schmich are discussed above. These references teach wiring patterns, but do not teach electroplating wiring patterns.

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Mitchell teaches a method of manufacturing a PCB. Mitchell teaches making a copper circuit pattern on a printed circuit board that utilizes electroplating. One of ordinary skill in the art would observe that copper may be electroplated selectively using a plating mask (col. 4, ll. 1-24).

It would have been obvious to one of ordinary skill in the art at the time of the invention to form the wiring patterns by electroplating in the devices of Harari, Li, Ocken, or Schmich. One of ordinary skill in the art would expect that this would allow selective formation of copper wires using a plating mask as taught by Mitchell without the need for etching a foil layer.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. No. 5,216,581 ("Fisher"). Fisher is similar to Li cited above, but places weakening grooves (122, 124) on the bottom of the rigid plate (Fig. 5).

WO 01/06563 A1 ("Sapir") (cited by applicant). The examiner finds that Sapir is not prior art. Applicants are entitled to their foreign filing date under 35 U.S.C. § 119(a-d) of December 1, 2000, based on their English language foreign priority document, which has been received in this application. Sapir has an international filing date prior to November 29, 2000, and therefore can only be prior art as of its publication date of January 25, 2001, which is after the effective filing date of this application. U.S. Patent Application 09/616,32, which is listed as a priority document on the face of Sapir, but this application has not resulted in an issued patent or application publication that would be effective against this application under 35 U.S.C. § 102(e) based on the aforementioned filing date. Accordingly, the subject matter of Sapir need not be evaluated against the claims of this application.

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Any inquiry concerning communications from the examiner should be directed to Jeff Vockrodt at (703) 306-9144 who can be reached on weekdays from 9:30 am to 5:00 pm EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian, can be reached at (703) 308-4905.

The fax numbers for this Group are (703) 305-3432, (703) 308-7722, (703) 305-3431, and (703) 308-7724. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist at (703) 308-0956.

June 4, 2003

J. Vockrodt



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